ABSTRACT:

Sandwich panels represent a basic design unit for light weight structures. Sandwich panels typically consist of at least two different materials for core and skin. Within the scope of this paper, the large deformation behaviour of different cellular core materials for sandwich panels is investigated. The large deformation behaviour for different core materials is analysed experimentally by compression tests. We investigate metallic hollow sphere structures (MHSS) and synthetic polyvinyl chloride (PVC) foams. In addition, appropriate computational models are presented to account for the deformation mechanisms and to compare computational to experimental results. With these models we will be able to already validate the future experimental test set-ups with numerical simulations before the test set-up is build.